



ICAO ENGINE EXHAUST EMISSIONS DATA SHEET

SUBSONIC ENGINES

ENGINE IDENTIFICATION: Trent 1000-A2
UNIQUE ID NUMBER: 12RR061
COMBUSTOR: Phase5 Tiled
ENGINE TYPE: TF

BYPASS RATIO: 9.3
PRESSURE RATIO (π_{00}): 41.3
RATED THRUST (F_{00}) (kN): 310.9

REGULATORY DATA

CHARACTERISTIC VALUE:	HC	CO	NO _x	SMOKE NUMBER
D _p /F ₀₀ (g/kN) or SN	0.1	12.0	58.4	6.5
AS % OF ORIGINAL LIMIT	0.3	10.2	47.7	37.5
AS % OF CAEP/2 LIMIT (NO _x)			59.6	
AS % OF CAEP/4 LIMIT (NO _x)			65.2	
AS % OF CAEP/6 LIMIT (NO _x)			71.7	
AS % OF CAEP/8 LIMIT (NO _x)			80.4	

DATA STATUS

- PRE-REGULATION
x CERTIFICATION
- REVISED (SEE REMARKS)

TEST ENGINE STATUS

- NEWLY MANUFACTURED ENGINES
x DEDICATED ENGINES TO PRODUCTION STANDARD
- OTHER (SEE REMARKS)

EMISSIONS STATUS

x DATA CORRECTED TO REFERENCE
(ANNEX 16 VOLUME II)

CURRENT ENGINE STATUS

(IN PRODUCTION, IN SERVICE UNLESS OTHERWISE NOTED)
x OUT OF PRODUCTION (DATE: -)
- OUT OF SERVICE (DATE: -)

MEASURED DATA

MODE	POWER SETTING (%F ₀₀)	TIME (minutes)	FUEL FLOW (kg/s)	HC	CO	NO _x	SMOKE NUMBER
TAKE-OFF	100	0.7	2.284	0.00	0.51	46.11	3.5
CLIMB OUT	85	2.2	1.882	0.00	0.45	35.48	4.2
APPROACH	30	4.0	0.624	0.00	0.77	13.11	3.6
IDLE	7	26.0	0.245	0.04	8.40	5.48	0.5
LTO TOTAL FUEL (kg) or EMISSIONS (g)			876	17	3481	17288	-
NUMBER OF ENGINES				4	4	4	4
NUMBER OF TESTS				8	8	8	8
AVERAGE D _p /F ₀₀ (g/kN) or AVERAGE SN (MAX)				0.1	11.2	55.6	6.0
SIGMA (D _p /F ₀₀ in g/kN, or SN)				0.1	2.9	0.9	2.3
RANGE (D _p /F ₀₀ in g/kN, or SN)				0-0.11	7.69-14.49	54.78-56.48	3-8.3

ACCESSORY LOADS

POWER EXTRACTION 0 (kW)
STAGE BLEED 0 (% CORE FLOW)

AT - POWER SETTINGS
AT - POWER SETTINGS

ATMOSPHERIC CONDITIONS

BAROMETER (kPa)	98.9-102.1
TEMPERATURE (K)	284.1-293.2
ABS HUMIDITY (kg/kg)	0.00432-0.00968

FUEL

SPEC	
H/C	1.9
AROM (%)	17.4

MANUFACTURER: Rolls-Royce plc
TEST ORGANIZATION: Rolls-Royce
TEST LOCATION: Derby
TEST DATES: 24/09/2009-03/08/2012

NO_x REGULATION PARAGRAPH

	2.3.2 c) (CAEP/4)
	2.3.2 d) (CAEP/6)
x	2.3.2 e) (CAEP/8)

REMARKS

1. Representative of Package C1 engines
2. DNS183412
3. Certification in accordance with Part III, Chapter 2, of Amendment 7 of ICAO Annex 16 Vol. II.
4. NO_x levels in accordance with Part III, Chapter 2, 2.3.2 e) (CAEP/8)

Compliance with Fuel Venting requirements:

x ('x' if complies, 'PR' if pre-regulation, '-' if information is not available)